SEQUENCE LISTING

<110> Brachmann, Rainer

<120> ENGINEERED OPEN READING FRAME FOR P53

<130> 004255.00008

<160> 71

<170> FastSEQ for Windows Version 4.0

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<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

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<213> Artificial Sequence

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gatgatttga tgctgagccc agacgatatt gaacaatggt tcactgagga tccaggccca 180
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<210> 3
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<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

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gatgatttga tgctgagccc agacgatatt gaacaatggt tcactgagga tccaggccca 180
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<210> 4
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

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gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
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tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780

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<210> 5
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<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

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<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

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gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
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cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
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<210> 7
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<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

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gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
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<210> 8
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

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gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
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aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 9
<211> 1182
<212> DNA
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<220>
<223> Produced by genetic engineering

<400> 9
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gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
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tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
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<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

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gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
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gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
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<210> 11

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gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
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acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
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tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
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tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
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<210> 12
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<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 12
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gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
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tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
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ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatgc 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
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<210> 13
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 13
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gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
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gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
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<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

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gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
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<210> 15
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 15
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
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gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
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<210> 16
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 16
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gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
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<210> 17
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 17
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
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<210> 18
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 18
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
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<210> 19
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 19
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gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
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<210> 20
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 20
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gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
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tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
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<210> 21
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 21
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gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
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tctgttactt gtacgtactc tccagcccttaacaagatgt tttgccaact cgcgaagacc 420

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gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
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tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
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aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 22
<211> 1181
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 22
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acctgtggaa attgcttcct gaaaacaacg ttctgtcccc attgcctagt caagcaatgg 120
atgatttgat gctgtcccca gacgatattg aacaatggtt cactgaagat ccaggcccag 180
atgaagctcc acgaatgcca gaggccgctc caccggttgc cccagcacca gcagctccta 240
caccggcggc cccagctccg gccccatcct ggcctctgtc atcttctgtc ccttcccaga 300
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aaaaactgat gttcaagacc gaaggtcctg actcagactg a 1181

<210> 23
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 23
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gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600

ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
ttctgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
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ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 24
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 24
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagcccct aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact gcaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
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<210> 25
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 25
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagcccct aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gctgcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780

tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
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ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 26
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 26
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt gcacgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
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aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 27
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 27
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
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aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 28
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 28
atggaagaac cacagtcaga tcctagcgtc gaaccacctc tgagtcagga aacctttca 60
gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acactacgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
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ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 29
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 29
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
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tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
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ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggtacc 840
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ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140

aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 30
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 30
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacg tccccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
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ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
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ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 31
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 31
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacg 420
tacccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
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ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
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<210> 32

<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 32
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
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tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
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ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
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<210> 33
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 33
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gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
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gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
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tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cagcggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
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ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 34
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 34
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagcccct aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gagatgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 35
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 35
atggaagaac cacagtcaga tcctagcgtc gaaccacctc tgagtcagga aacctttca 60
gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagcccct aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaaaagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
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ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 36
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 36
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagcctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcctgc gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 37
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 37
atggaagaac cacagtcaga tcctagcgtc gaaccacctc tgagtcagga aacctttca 60
gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagcctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcgtcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 38
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 38
atggaagaac cacagtcaga tcctagcgtc gaaccacctc tgagtcagga aacctttca 60

gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacggtaccc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
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aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 39
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 39
atggaagaac cacagtcaga tcctagcgtc gaaccacctc tgagtcagga aacctttca 60
gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtacaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
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aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 40
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 40
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240

acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cctcggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 41
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 41
atggaagaac cacagtcaga tcctagcgtc gaaccacctc tgagtcagga aacctttca 60
gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctagagcg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 42
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 42
atggaagaac cacagtcaga tcctagcgtc gaaccacctc tgagtcagga aacctttca 60
gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420

tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggcaaa 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 43
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 43
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgaa gatctgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
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aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 44
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 44
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
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tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600

ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tccttcgaag gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 45
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 45
atggaagaac cacagtcaga tcctagcgtc gaaccacctc tgagtcagga aacctttca 60
gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcatgc gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 46
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 46
atggaagaac cacagtcaga tcctagcgtc gaaccacctc tgagtcagga aacctttca 60
gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttacacgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780

tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 47
<211> 1181
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 47
tggaagaacc acagtcagat cctagcgtcg aaccacctct gagtcaggaa acctttcag 60
acctgtggaa attgcttcct gaaaacaacg ttctgtcccc attgcctagt caagcaatgg 120
atgatttgat gctgtcccca gacgatattg aacaatggtt cactgaagat ccaggcccag 180
atgaagctcc acgaatgcca gaggccgctc caccggttgc cccagcacca gcagctccta 240
caccggcggc cccagctccg gccccatcct ggcctctgtc atcttctgtc ccttcccaga 300
aaacctacca gggcagctac ggtttccgtc tgggcttctt gcattctgga actgccaagt 360
ctgttacttg tacgtactct ccagccctta acaagatgtt ttaccaactc gcgaagacct 420
gcccagtcca actgtgggtc gactccaccc ctccacctgg tacacgtgtc cgcgcaatgg 480
ccatctacaa gcagagccag cacatgacgg aggtcgtacg acgctgtcca caccatgagc 540
gctgctcaga ttctgatggt ctggcgccac cacagcatct tatccgagtg gaaggtaacc 600
tacgcgtgga gtatctagat gaccgcaaca cttttcgaca cagtgtggtg gtgccatatg 660
agccaccaga agttggctct gactgcacca ccatccacta caactatatg tgtaacagtt 720
catgcatggg cggcatgaac cggcggccga tcctgaccat catcactctc gaggattcct 780
caggtaatct cctaggacgg aattcctttg aggtgcgtgt ttgtgcatgc ccgggccgcg 840
atcgccggac cgaagaggag aatctccgga agaaaggtga gcctcaccac gagctgccac 900
caggaagcac taagcgagca ctgccaaaca acaccagcag ttctccacag ccaaagaaga 960
aacctttgga cggagaatat ttcacccttc agatccgtgg ccgtgagcgg ttcgagatgt 1020
tccgagagct gaatgaggcc ttagaactta aggatgccca ggctggtaag gagccaggag 1080
gcagccgtgc tcatagcagc cacctgaagt ccaaaaaggg tcagtctacc tcccgccata 1140
aaaaactgat gttcaagacc gaaggtcctg actcagactg a 1181

<210> 48
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 48
atggaagaac cacagtcaga tcctagcgtc gaaccacctc tgagtcagga aacctttca 60
gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaactca 720
agcttcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960

aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 49
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 49
atggaagaac cacagtcaga tcctagcgtc gaaccacctc tgagtcagga aacctttca 60
gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttacgcgtg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 50
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 50
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aaccgcatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140

aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 51
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 51
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccaccgg taacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 52
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 52
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
acaatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
aaacctttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 53

<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 53
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gagcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
aaaccttttgg acggagaata tttcaccctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 54
<211> 393
<212> PRT
<213> Homo sapiens

<400> 54
Met Glu Glu Pro Gln Ser Asp Pro Ser Val Glu Pro Pro Leu Ser Gln
1 5 10 15
Glu Thr Phe Ser Asp Leu Trp Lys Leu Leu Pro Glu Asn Asn Val Leu
20 25 30
Ser Pro Leu Pro Ser Gln Ala Met Asp Asp Leu Met Leu Ser Pro Asp
35 40 45
Asp Ile Glu Gln Trp Phe Thr Glu Asp Pro Gly Pro Asp Glu Ala Pro
50 55 60
Arg Met Pro Glu Ala Ala Pro Pro Val Ala Pro Ala Pro Ala Ala Pro
65 70 75 80
Thr Pro Ala Ala Pro Ala Pro Ala Pro Ser Trp Pro Leu Ser Ser Ser
85 90 95
Val Pro Ser Gln Lys Thr Tyr Gln Gly Ser Tyr Gly Phe Arg Leu Gly
100 105 110
Phe Leu His Ser Gly Thr Ala Lys Ser Val Thr Cys Thr Tyr Ser Pro
115 120 125
Ala Leu Asn Lys Met Phe Cys Gln Leu Ala Lys Thr Cys Pro Val Gln
130 135 140
Leu Trp Val Asp Ser Thr Pro Pro Pro Gly Thr Arg Val Arg Ala Met
145 150 155 160
Ala Ile Tyr Lys Gln Ser Gln His Met Thr Glu Val Val Arg Arg Cys
165 170 175
Pro His His Glu Arg Cys Ser Asp Ser Asp Gly Leu Ala Pro Pro Gln
180 185 190
His Leu Ile Arg Val Glu Gly Asn Leu Arg Val Glu Tyr Leu Asp Asp
195 200 205
Arg Asn Thr Phe Arg His Ser Val Val Val Pro Tyr Glu Pro Pro Glu
210 215 220

```
Val Gly Ser Asp Cys Thr Thr Ile His Tyr Asn Tyr Met Cys Asn Ser
225                 230                 235                 240
Ser Cys Met Gly Gly Met Asn Arg Arg Pro Ile Leu Thr Ile Ile Thr
                245                 250                 255
Leu Glu Asp Ser Ser Gly Asn Leu Leu Gly Arg Asn Ser Phe Glu Val
            260                 265                 270
Arg Val Cys Ala Cys Pro Gly Arg Asp Arg Arg Thr Glu Glu Glu Asn
        275                 280                 285
Leu Arg Lys Lys Gly Glu Pro His His Glu Leu Pro Pro Gly Ser Thr
    290                 295                 300
Lys Arg Ala Leu Pro Asn Asn Thr Ser Ser Ser Pro Gln Pro Lys Lys
305                 310                 315                 320
Lys Pro Leu Asp Gly Glu Tyr Phe Thr Leu Gln Ile Arg Gly Arg Glu
                325                 330                 335
Arg Phe Glu Met Phe Arg Glu Leu Asn Glu Ala Leu Glu Leu Lys Asp
            340                 345                 350
Ala Gln Ala Gly Lys Glu Pro Gly Gly Ser Arg Ala His Ser Ser His
        355                 360                 365
Leu Lys Ser Lys Lys Gly Gln Ser Thr Ser Arg His Lys Lys Leu Met
    370                 375                 380
Phe Lys Thr Glu Gly Pro Asp Ser Asp
385                 390
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<210> 55
<211> 393
<212> PRT
<213> Homo sapiens

<400> 55

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Met Glu Glu Pro Gln Ser Asp Pro Ser Val Glu Pro Pro Leu Ser Gln
 1               5                  10                  15
Glu Thr Phe Ser Asp Leu Trp Lys Leu Leu Pro Glu Asn Asn Val Leu
            20                  25                  30
Ser Pro Leu Pro Ser Gln Ala Met Asp Asp Leu Met Leu Ser Pro Asp
        35                  40                  45
Asp Ile Glu Gln Trp Phe Thr Glu Asp Pro Gly Pro Asp Glu Ala Pro
    50                  55                  60
Arg Met Pro Glu Ala Ala Pro Arg Val Ala Pro Ala Pro Ala Ala Pro
65                  70                  75                  80
Thr Pro Ala Ala Pro Ala Pro Ala Pro Ser Trp Pro Leu Ser Ser Ser
                85                  90                  95
Val Pro Ser Gln Lys Thr Tyr Gln Gly Ser Tyr Gly Phe Arg Leu Gly
            100                 105                 110
Phe Leu His Ser Gly Thr Ala Lys Ser Val Thr Cys Thr Tyr Ser Pro
        115                 120                 125
Ala Leu Asn Lys Met Phe Cys Gln Leu Ala Lys Thr Cys Pro Val Gln
    130                 135                 140
Leu Trp Val Asp Ser Thr Pro Pro Pro Gly Thr Arg Val Arg Ala Met
145                 150                 155                 160
Ala Ile Tyr Lys Gln Ser Gln His Met Thr Glu Val Val Arg Arg Cys
                165                 170                 175
Pro His His Glu Arg Cys Ser Asp Ser Asp Gly Leu Ala Pro Pro Gln
            180                 185                 190
His Leu Ile Arg Val Glu Gly Asn Leu Arg Val Glu Tyr Leu Asp Asp
        195                 200                 205
Arg Asn Thr Phe Arg His Ser Val Val Val Pro Tyr Glu Pro Pro Glu
    210                 215                 220
Val Gly Ser Asp Cys Thr Thr Ile His Tyr Asn Tyr Met Cys Asn Ser
225                 230                 235                 240
Ser Cys Met Gly Gly Met Asn Arg Arg Pro Ile Leu Thr Ile Ile Thr
                245                 250                 255
Leu Glu Asp Ser Ser Gly Asn Leu Leu Gly Arg Asn Ser Phe Glu Val
            260                 265                 270
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Arg Val Cys Ala Cys Pro Gly Arg Asp Arg Arg Thr Glu Glu Glu Asn
        275                 280                 285
Leu Arg Lys Lys Gly Glu Pro His His Glu Leu Pro Pro Gly Ser Thr
    290                 295                 300
Lys Arg Ala Leu Pro Asn Asn Thr Ser Ser Ser Pro Gln Pro Lys Lys
305                 310                 315                 320
Lys Pro Leu Asp Gly Glu Tyr Phe Thr Leu Gln Ile Arg Gly Arg Glu
                325                 330                 335
Arg Phe Glu Met Phe Arg Glu Leu Asn Glu Ala Leu Glu Leu Lys Asp
            340                 345                 350
Ala Gln Ala Gly Lys Glu Pro Gly Gly Ser Arg Ala His Ser Ser His
        355                 360                 365
Leu Lys Ser Lys Lys Gly Gln Ser Thr Ser Arg His Lys Lys Leu Met
    370                 375                 380
Phe Lys Thr Glu Gly Pro Asp Ser Asp
385                 390
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<210> 56
<211> 393
<212> PRT
<213> Homo sapiens

<400> 56

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Met Glu Glu Pro Gln Ser Asp Pro Ser Val Glu Pro Pro Leu Ser Gln
 1               5                  10                  15
Glu Thr Phe Ser Asp Leu Trp Lys Leu Leu Pro Glu Asn Asn Val Leu
            20                  25                  30
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Phe Leu His Ser Gly Thr Ala Lys Ser Val Thr Cys Thr Tyr Ser Pro
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gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
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aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 63
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 63
atggaagaac cacagtcaga tcctagcgtc gaaccacctc tgagtcagga aacctttca 60
gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcctc ggacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccacgcgttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
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tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
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aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 64
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 64
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gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcctc ggacgatatt gaacaatggt tcactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
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aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 65
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 65
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gatctgtgga agcttcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120

gatgatttga tgctgagccc agacgatatt gaacaatggt tcactgagga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccacgcgttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
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ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 66
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 66
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gatgatttga tgctgagctc ggacgatatt gaacaatggt tcactgagga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccacgcgttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaaggtg agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
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ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
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aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 67
<211> 1182
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 67
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gatctgtgga agcttcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgagctc ggacgatatt gaacaatggt tcactgagga tccaggccca 180

gatgaagctc cacgaatgcc agaggccgct ccaccggttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
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ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 68
<211> 1181
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 68
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gatctgtgga agcttcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgagccc agacgatatt gaacaatggt tcactgagga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccacgcgttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
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ggcagccggg cccattcgtc tcacctgaag tccaaaaagg gtcagtctac tagtcgccat 1140
aaaaaactga gttcaagacc gaaggtcctg actcagactg a 1181

<210> 69
<211> 1181
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

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gatgatttga tgctgagctc ggacgatatt gaacaatggt tcactgagga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccacgcgttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360

tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
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ggcagccggg cccattcgtc tcacctgaag tccaaaaagg gtcagtctac tagtcgccat 1140
aaaaaactga gttcaagacc gaaggtcctg actcagactg a 1181

<210> 70
<211> 1181
<212> DNA
<213> Artificial Sequence

<220>
<223> Produced by genetic engineering

<400> 70
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gatctgtgga agcttcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgagccc agacgatatt gaacaatggt tcactgagga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccacgcgttg ccccagcacc agcagctcct 240
acaccggcgg ccccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
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tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtcc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
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ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcggcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840
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<210> 71
<211> 1179
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(1179)

<221> misc_feature
<222> (1)...(1179)
<223> n = A,T,C or G

<400> 71
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Met Glu Glu Pro Gln Ser Asp Pro Ser Val Glu Pro Pro Leu Ser Gln
 1   5   10   15

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gar acn tty nnn gay ytn tgg aar ytn ytn ccn gar aay aay gtn ytn        96
Glu Thr Phe Ser Asp Leu Trp Lys Leu Leu Pro Glu Asn Asn Val Leu
            20                  25                  30

nnn ccn ytn ccn nnn car gcn atg gay gay ytn atg ytn nnn ccn gay       144
Ser Pro Leu Pro Ser Gln Ala Met Asp Asp Leu Met Leu Ser Pro Asp
        35                  40                  45

gay ath gar car tgg tty acn gar gay ccn ggn ccn gay gar gcn ccn       192
Asp Ile Glu Gln Trp Phe Thr Glu Asp Pro Gly Pro Asp Glu Ala Pro
    50                  55                  60

nnn atg ccn gar gcn gcn ccn ccn gtn gcn ccn gcn ccn gcn gcn ccn       240
Arg Met Pro Glu Ala Ala Pro Pro Val Ala Pro Ala Pro Ala Ala Pro
65                  70                  75                  80

acn ccn gcn gcn ccn gcn ccn gcn ccn nnn tgg ccn ytn nnn nnn nnn       288
Thr Pro Ala Ala Pro Ala Pro Ala Pro Ser Trp Pro Leu Ser Ser Ser
                85                  90                  95

gtn ccn nnn car aar acn tay car ggn nnn tay ggn tty nnn ytn ggn       336
Val Pro Ser Gln Lys Thr Tyr Gln Gly Ser Tyr Gly Phe Arg Leu Gly
            100                 105                 110

tty ytn cay nnn ggn acn gcn aar nnn gtn acn tgy acn tay nnn ccn       384
Phe Leu His Ser Gly Thr Ala Lys Ser Val Thr Cys Thr Tyr Ser Pro
        115                 120                 125

gcn ytn aay aar atg tty tgy car ytn gcn aar acn tgy ccn gtn car       432
Ala Leu Asn Lys Met Phe Cys Gln Leu Ala Lys Thr Cys Pro Val Gln
    130                 135                 140

ytn tgg gtn gay nnn acn ccn ccn ccn ggn acn nnn gtn nnn gcn atg       480
Leu Trp Val Asp Ser Thr Pro Pro Pro Gly Thr Arg Val Arg Ala Met
145                 150                 155                 160

gcn ath tay aar car nnn car cay atg acn gar gtn gtn nnn nnn tgy       528
Ala Ile Tyr Lys Gln Ser Gln His Met Thr Glu Val Val Arg Arg Cys
                165                 170                 175

ccn cay cay gar nnn tgy nnn gay nnn gay ggn ytn gcn ccn ccn car       576
Pro His His Glu Arg Cys Ser Asp Ser Asp Gly Leu Ala Pro Pro Gln
            180                 185                 190

cay ytn ath nnn gtn gar ggn aay ytn nnn gtn gar tay ytn gay gay       624
His Leu Ile Arg Val Glu Gly Asn Leu Arg Val Glu Tyr Leu Asp Asp
        195                 200                 205

nnn aay acn tty nnn cay nnn gtn gtn gtn ccn tay gar ccn ccn gar       672
Arg Asn Thr Phe Arg His Ser Val Val Val Pro Tyr Glu Pro Pro Glu
    210                 215                 220

gtn ggn nnn gay tgy acn acn ath cay tay aay tay atg tgy aay nnn       720
Val Gly Ser Asp Cys Thr Thr Ile His Tyr Asn Tyr Met Cys Asn Ser
225                 230                 235                 240

nnn tgy atg ggn ggn atg aay nnn nnn ccn ath ytn acn ath ath acn       768
Ser Cys Met Gly Gly Met Asn Arg Arg Pro Ile Leu Thr Ile Ile Thr
                245                 250                 255

ytn gar gay nnn nnn ggn aay ytn ytn ggn nnn aay nnn tty gar gtn       816
Leu Glu Asp Ser Ser Gly Asn Leu Leu Gly Arg Asn Ser Phe Glu Val
            260                 265                 270
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nnn gtn tgy gcn tgy ccn ggn nnn gay nnn nnn acn gar gar gar aay      864
Arg Val Cys Ala Cys Pro Gly Arg Asp Arg Arg Thr Glu Glu Glu Asn
        275                 280                 285

ytn nnn aar aar ggn gar ccn cay cay gar ytn ccn ccn ggn nnn acn      912
Leu Arg Lys Lys Gly Glu Pro His His Glu Leu Pro Pro Gly Ser Thr
    290                 295                 300

aar nnn gcn ytn ccn aay aay acn nnn nnn nnn ccn car ccn aar aar      960
Lys Arg Ala Leu Pro Asn Asn Thr Ser Ser Ser Pro Gln Pro Lys Lys
305                 310                 315                 320

aar ccn ytn gay ggn gar tay tty acn ytn car ath nnn ggn nnn gar     1008
Lys Pro Leu Asp Gly Glu Tyr Phe Thr Leu Gln Ile Arg Gly Arg Glu
                325                 330                 335

nnn tty gar atg tty nnn gar ytn aay gar gcn ytn gar ytn aar gay     1056
Arg Phe Glu Met Phe Arg Glu Leu Asn Glu Ala Leu Glu Leu Lys Asp
            340                 345                 350

gcn car gcn ggn aar gar ccn ggn ggn nnn nnn gcn cay nnn nnn cay     1104
Ala Gln Ala Gly Lys Glu Pro Gly Gly Ser Arg Ala His Ser Ser His
        355                 360                 365

ytn aar nnn aar aar ggn car nnn acn nnn nnn cay aar aar ytn atg     1152
Leu Lys Ser Lys Lys Gly Gln Ser Thr Ser Arg His Lys Lys Leu Met
    370                 375                 380

tty aar acn gar ggn ccn gay nnn gay                                 1179
Phe Lys Thr Glu Gly Pro Asp Ser Asp
385                 390
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